

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

CLOSURE OF WASTE IMPOUNDMENTS

(No.)
CODE 360

DEFINITION

The safe closure of waste impoundments, (waste treatment lagoons and waste storage ponds) that are no longer used for their intended purpose, in an environmentally safe manner.

PURPOSE

This practice may be applied as part of a conservation management system to support one or more of the following purposes.

- To protect the quality of surface water and groundwater resources.
- To eliminate a safety hazard for humans and livestock.
- To safeguard the public health.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to agricultural waste treatment lagoons and waste storage ponds that are no longer needed as a part of a waste management system and are to be permanently closed or converted.

Where these impoundments are to be converted to fresh water storage and the original impoundment was not constructed to NRCS standards, this practice will only apply where the investigation, as called for in National Engineering Manual (NEM) 501.23, shows structural integrity.

CRITERIA

General criteria applicable to all purposes.

All planned work shall comply with all Federal, state, and local laws and regulations.

All structures used to convey waste to lagoons or waste storage ponds shall be replaced with compacted earth material or otherwise rendered unable to convey waste.

Liquid and slurry wastes shall be agitated and pumped to the extent conventional pumping will allow. Clean water shall be added as necessary to facilitate the agitation and pumping. The wastewater shall be utilized in accordance with NRCS conservation practice standard, Waste Utilization, Code 633 and/or Nutrient management, Code 590. The sludge remaining on the bottom and sides of the waste treatment lagoons or waste storage ponds may remain in place if it will not pose a threat to the environment. If leaving the sludge in place would pose a threat, it shall be removed to the fullest extent practical and utilized in accordance with NRCS conservation practice standard, Waste Utilization, Code 633 and/or Nutrient management, Code 590.

Land reclamation. Impoundments with embankments may be breached so that they will no longer impound water and excavated impoundments may be backfilled so that these areas may be reclaimed for other uses. Waste impoundments that have water impounded against the embankment are considered embankment structures if the depth of water is three (3) feet or more above natural ground.

(1) Embankment Impoundments. Waste shall be removed from the site before the embankment is breached. The slopes and bottom of the breach shall be stable for the soil material involved, however the side slopes shall be no steeper than three horizontal to one vertical (3:1).

(2) Excavated Impoundments. The backfill height shall exceed the design finished grade by 5 percent to allow for settlement. The finished surface shall be constructed of the most clayey material available and mounded to shed rainfall runoff. Incorporate available topsoil where feasible to aid establishment of vegetation.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Conversion to fresh water storage. The converted impoundment shall meet the requirements of the appropriate NRCS conservation practice standard for the intended purpose (e.g. Pond, Code 378; Irrigation Pit or Regulating Reservoir, Code 552; or Irrigation Storage Reservoir, Code 436). This will require an investigation of the structural integrity of the impoundment if not originally constructed with NRCS technical assistance.

Safety. When sludge is not removed from an embankment or excavated pond, precautions (fencing and warning signs) will be used to ensure that the pond is not used for incompatible purposes (such as swimming, livestock watering, fish production, etc.) until water quality is adequate for the intended purpose. Water quality sampling and analysis shall be used to determine when the pond is safe for these uses.

Protection. All disturbed areas not returned to crop production shall be vegetated in accordance with NRCS conservation practice standard Critical Area Planting, Code 342.

Measures shall be taken during construction to minimize erosion and pollution of downstream water resources. This may include details and specifications for such items as silt fences, hay bale barriers, temporary vegetation, mulching, etc.

CONSIDERATIONS

If the surface of the waste impoundment is covered with a floating mat and a dense stand of vegetation, it may be necessary to apply a herbicide to the vegetation and then burn the residue if the material is to be removed by pumping. Appropriate burning permits should be obtained.

Sludge from poultry lagoons can contain large quantities of ground oyster shells. Other waste impoundments receiving runoff from cattle washing areas and open lots can contain excessive amounts of soil and other debris. These types of sludge will be difficult to remove by agitation and pumping.

When converting waste treatment lagoons and waste storage ponds to fresh water ponds, the effects on the water budget should be considered. A pond will reduce surface runoff,

trap sediment, and reduce nutrients and pesticides leaving the land.

Consideration of climate factors such as humidity, wind speed, and wind direction should be considered to determine the timing and method of applying the wastewater and sludge from the lagoon or waste storage pond.

If livestock will have access to the closed waste impoundment, consideration should be given to fencing or installation of watering ramp where needed for safety when converted to fresh water ponds.

If the closed or abandoned waste treatment pond is to be filled with fresh water and used for fish production, consideration should be given to the removal of the sludge since it will be a source of biological oxygen demand (BOD).

Sludge which is allowed to dry will begin to break down aerobically. This will result in a release of nutrients from the sludge, which can last years depending upon the depth of sludge. For this reason, sludge which is left in place should be kept flooded to prevent this from occurring, or other measures taken to prevent this release of nutrients from becoming a source of surface or ground water contamination.

PLANS AND SPECIFICATIONS

Plans and specifications for closure of abandoned waste treatment lagoons and waste storage ponds shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. If the waste treatment lagoon or waste storage pond is converted to a fresh water pond, the pond shall be required to meet the NRCS conservation practice standard for the intended purpose. The plans and specifications will also be in keeping with the requirements of that standard.

OPERATION AND MAINTENANCE

The proper closure of a waste treatment lagoon or waste storage pond should require little or no operation and maintenance; however, if it has been converted to another use, such as a fresh water pond, operation and maintenance will be in accordance with the needs as set forth in NRCS conservation practice standard for the intended purpose.

REFERENCES

NRCS Conservation Practice Standards:

Critical Area Planting, Code 342

Irrigation Pit or Regulating Reservoir, Code
552

Irrigation Storage Reservoir, Code 436

Nutrient Management, Code 590

Pond, Code 378

Waste Utilization, Code 633